CLAIMS

1. Tool arrays for biomedical surgery, characterized in that (i) the tools consist of layered polymer micromuscles arranged to induce geometrical changes and movements via an electrochemically induced change of volume in at least one polymer layer, and (ii) the tool or tool arrays are mounted on a carrier having the form of a needle being inserted into a cannula/catheter through which the tools can be electrically actuated via external means to induce a mechanical movement to act upon biological structures.

2. Tool arrays according to claim 1, characterized in that the layered polymer consists of a single layered polymer.

3. Tool arrays according to claim 1, characterized in that the layered polymer consists of a bi-layered polymer.

4. Tool arrays according to claim 1, characterized in that the layered polymer consists of multilayered polymer and metal layers.

5. Tool arrays according to one or more of claims 1-4, characterized in that the mechanical movement is used to position a biological structure.

6. Tool arrays according to one or more of claims 1-4, characterized in that the mechanical movement is used to hold a biological structure.

7. Tool arrays according to one or more of claims 1-4, characterized in that the mechanical movement is used to cut a biological structure.

8. Tool arrays according to one or more of claims 1-4, characterized in that the mechanical movement is used to dilate a biological structure.

9. Tool arrays according to one or more of claims 1-4, characterized in that the mechanical movement is used to fortify a biological structure.

10. Tool arrays according to one or more of claims 1-4, characterized in that the mechanical movement is used to implant a biological structure.

11. Tool arrays according to one or more of claims 1-10, characterized in that a number of identical tools are located on a tool array extending along a length of the cannula, catheter or needle, and wherein the actuation of a tool closest to the exit of the catheter is arranged to release a tool from the tool array and is arranged to leave it at the point of exit of the catheter in order to mount the tool at/in some biological structure.

12. Tool arrays according to claim 11, characterized in that a number of identical tools are located on the tool array extending along the catheter or needle and where each tool is arranged to become individually actuated.

13. Tool arrays according to claim 11, characterized in that a number of non-identical tools are located on the tool array extending along the catheter or needle and where each tool is arranged to become individually actuated.

14. Tool arrays according to one or more of claims 1-13, characterized in that the individual tool is a clip arranged to join biological tissues or tissue parts, and arranged to hold the said tissues or tissue parts to allow healing.

15. Tool arrays according to one or more of claims 1-13, characterized in that the individual tool is an expandable cylindrical object designed to be inserted, in a contracted state, into a biological tube, and arranged to become expanded to keep said tube in an expanded state or to join two or more biological tubes.

16. Tool arrays according to one or more of claims 1-13, characterized in that the individual tool is a scissors.

17. Tool arrays according to one or more of claims 1-13, characterized in that the individual tool is a knife, which is arranged on an actuator, being arranged for linear and/or angular movement.

18. Tool arrays according to one or more of claims 1-13, characterized in that the individual tool is a sharp needle that is arranged on an actuator being arranged for linear and/or angular movement.

19. Tool arrays according to one or more of claims 1-13, characterized in that the individual tool is a dilator.

20. Tool arrays according to one or more of claims 1-13, characterized in that the individual tool is a clamp.

21. Tool arrays according to one or more of claims 1-13, characterized in that the individual tool is a tweezers.

22. Tool arrays according to one or more of claims 1-21, characterized in that the polymer micromuscles are built of layers, of which at least one is a conjugated polymer.

23. Tool arrays according to claim 22, characterized in that the conjugated polymer is selected from the group consisting of pyrrole, aniline, thiophene, para-phenylene, vinylene, and phenylene polymers and copolymers, including substituted forms of the different monomers.

24. Tool arrays according to claim 1, characterized in that the tool is built of bi-layered polymer, where the electrically activated volume change of said, at least one conjugated polymer is arranged to cause a bending of said bi-layer.

25. Tool arrays according to claim 1, characterized in that the tool is built of multilayered polymer, where the electrically activated volume change of said, at least one conjugated polymer is arranged to cause a bending of said multilayer.